Grain huller for rice, spelt wheat, quinoa, sesame and millet, DIY

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https://sites.google.com/view/low-tech-farm-tools

This invention became public domain on August 9, 1989, a gift to humanity

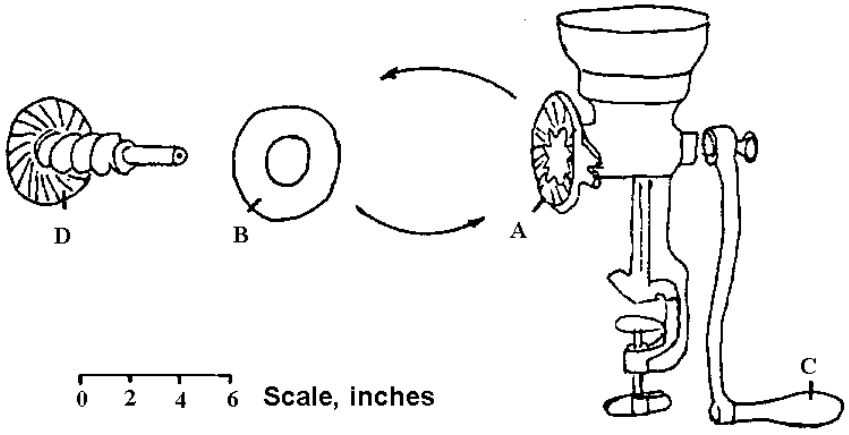
The two main components of the rice huller are a hand mill/ flourmill or grain grinder and a rubber-faced disk made from:

- A rubber disk,
- A steel washer for mounting the rubber disk on the hand mill,
- Cyanoacrylate glue ("super glue" or “krazy glue") to attach the rubber disk onto the steel washer. Alternatively, use Plumbers Goop (‘Amazing Goop Plumbing Adhesive’ by Eclectic Products) to attach butyl rubber to steel washer.

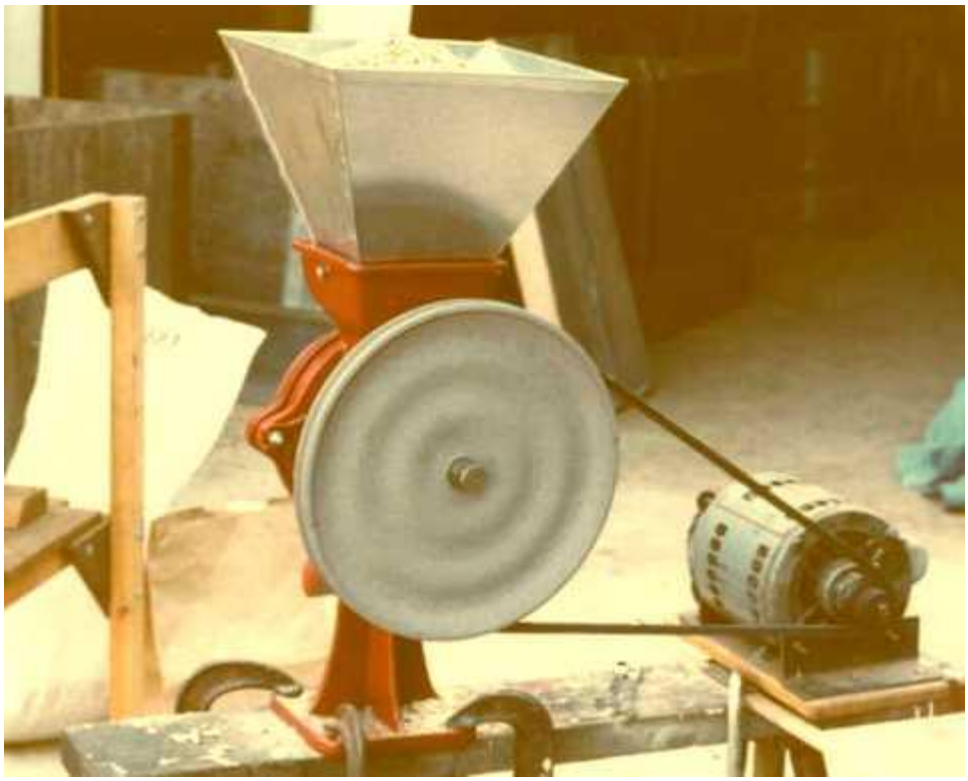
Remove the stationary disk (A) and replaced by a rubber-faced disk (B). By turning the auger handle (C), rice grains are pressed between the rubber-faced disk (B) and rotating disk (D) and then rolled out. The soft rubber disk allows the hulls to be removed with minimal damage to the rice kernels. Natural (gum) rubber is used for the rubber disk because of its abrasion resistance. Hand mills are available from R&R Mill Co., Smithfield, UT and CS Bell, Tiffin, OH.

Short grain rice can be hulled at a rate of 200 g/min. The percentage of rice hulled varies from 75 to 99% depending on the rice cultivars, the spacing between the stationary rubber disk and the rotating abrasive disk, and uniformity of spacing between the disks. A tin-plated steel burr disk may produce a black gum residue when hulling rice, until the tin is worn off. No black residue was found when using a cast iron disk or stone disk.

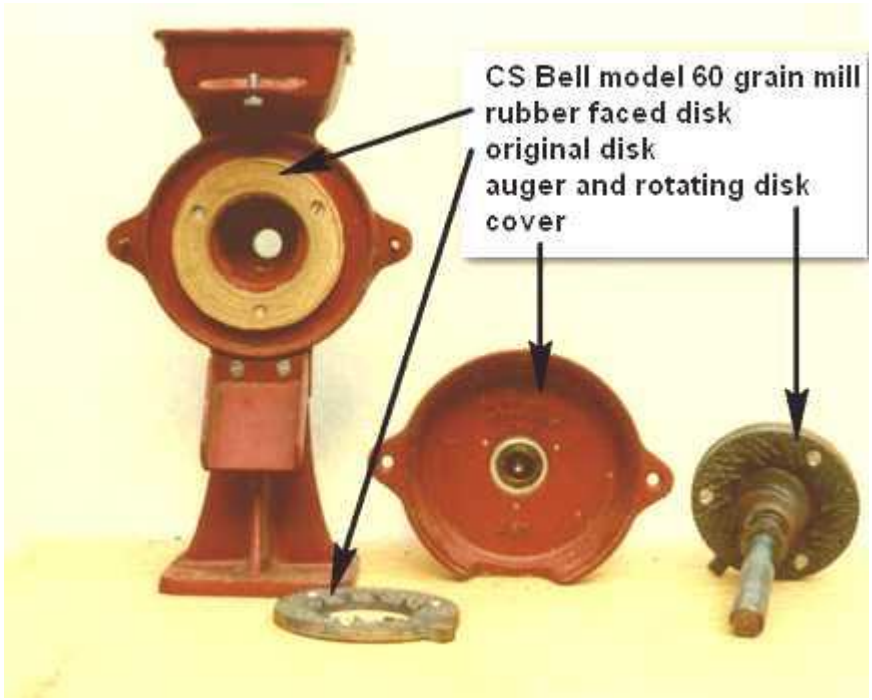
The grain huller also hulls millet (Panicum miliaceum), sesame (Sesamum indicum), and spelt wheat (Triticum spelta) as well as remove saponins from quinoa (Chenopodium quinoa). To "wet" hull sesame, soak the seeds in 1% (w: v) lye (sodium hydroxide) solution for 10 seconds to 5 minutes, then rinse with water and 1% solution of acetic acid (Shamanthaka Sastry et al, J. Am. Oil Chem. Soc. 46:592A, 1969; Moharram et al, Lebensmit. Wissen. Tech. 14:137, 1981). A steel burr disk is preferred for wet hulling sesame, while a stone disk is preferred for hulling spelt wheat.



Hand operated rice huller: A) stationary disk, B) rubber disk, C) handle and D) rotating disk with auger. Remove stationary disk and replace with rubber-faced disk.



CS Bell Model 60 grain mill motorized and converted to huller



CS Bell grain huller, disassembled. Replaced original stationary disk with rubber faced disk.